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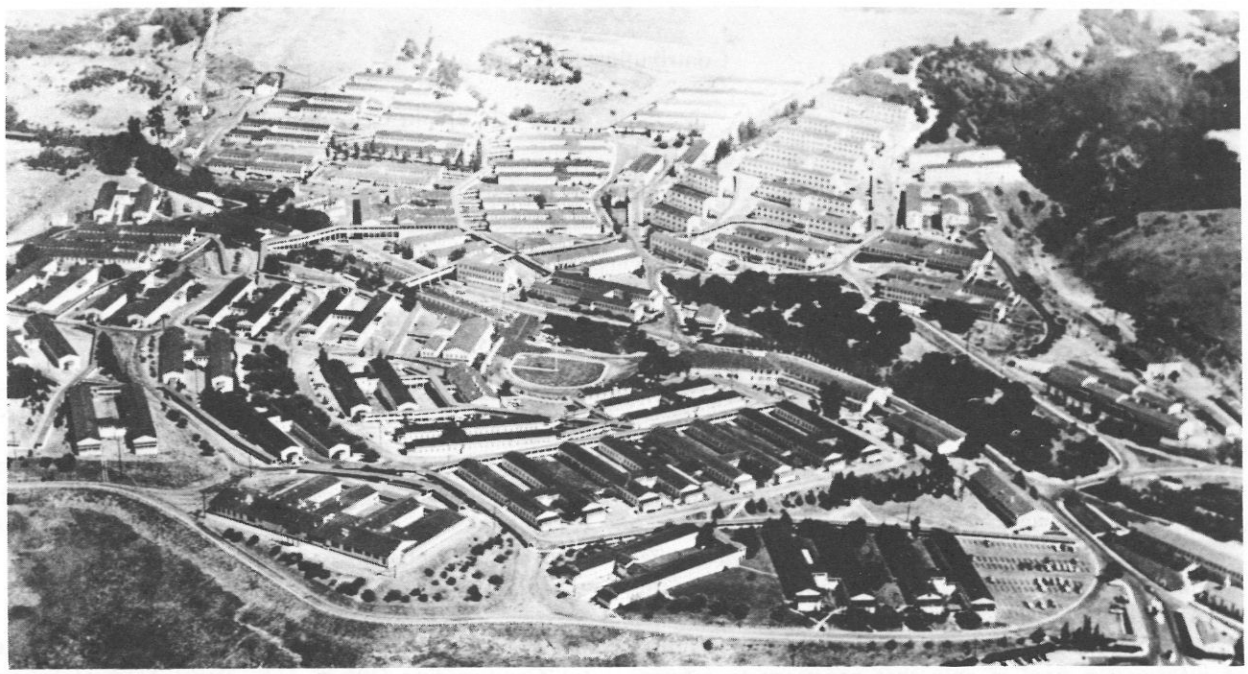

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Policy

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

FRONT COVER: Aerial view of the U.S. Naval Hospital, Oakland, California. Located in the East Oakland foothills on the former 208 acre site of the Oak Knoll Golf and Country Club.

The hospital was commissioned on 1 July 1942 with 6 ward buildings and 204 beds ready for occupancy.

Construction kept pace with the developments in the Pacific, and in 1945 the hospital was caring for more than 6,000 patients and had a military and civilian staff of approximately 3,000.

An important step in the development of Oak Knoll came in 1950 when the Navy's West Coast Centers for care of amputee patients and those with neuropsychiatric problems were moved here from Mare Island when that hospital was reduced to dispensary status.

It serves as a general hospital and also provides specialized treatment in thoracic, cardiovascular, and plastic surgery, neurosurgery, surgery for deafness and for repair of the cornea, malignant diseases, neurological and neuropsychiatric problems.—Editor.

MEDICAL ARTICLES

A PATIENT WITH ABDOMINAL PAIN AND FEVER

Mayo Clinic Proceedings 40(3): 260–269, March 1965.

Resume of Case

A 30-year-old white man entered the hospital on June 14, 1963, complaining of nausea, vomiting, fever, and abdominal pain of 3 weeks' duration.

One month earlier he had had a chill and aching pain had developed in the right lower quadrant of the abdomen; there were intermittent sharp exacerbations of the pain. After observation for 1 week, an appendectomy was performed, but the appendix was found to be normal. Limited exploration of the abdomen revealed no abnormalties.

The patient felt well for 4 days. Then the pain in the right lower part of the abdomen recurred and was accompanied by nausea and vomiting. The pain spread to the back, and discomfort occurred in the anterior part of the chest during inspiration. Fever and night sweats developed. The patient became weak and anorectic; he lost 20 pounds. There had been no known exposure to farm animals, chemicals, or infectious diseases.

The blood pressure measured 120 mm. Hg systolic and 70 mm. diastolic; the pulse, 94 beats per minute; and the temperature, 100° F. The patient appeared to be acutely ill. Breath sounds were decreased over the right lung inferiorly, and there was increased dullness to percussion in the same area. A recent appendectomy scar was evident on a slightly distended abdomen. No mass was delineated There was marked tenderness with muscle guarding over the entire right side of the abdomen. The tenderness extended into the right flank, but no rebound tenderness was elicited. Flexion and extension of the thigh exaggerated the pain. Tenderness was noted along the right side of the rectum. No rectal mass was felt. All back motion was limited by pain in the right flank.

Urinalysis showed a specific gravity of 1.011, acid reaction, no albumin or sugar, grade 2 erythrocytosis and grade 1 pyuria. Blood hemoglobin measured 13.6 gm. per 100 ml. Red blood cells numbered 4,580,000 per cubic millimeter and white blood cells 8100—lymphocytes 11 per cent, monocytes 7, neutrophils 81, and eosinophils 1. A urine culture and two blood cultures gave negative results. There was no reaction to tuberculin. The erythrocyte sedimentation rate (Westergren) was 84 mm. in 1 hour, and the prothrombin time was 25 seconds. Blood sugar measured 100 mg. per 100 ml.; blood urea, 32. Serum bilirubin measured 1.1 mg. per 100 ml., indirect, and 0, direct. Serum amylase measured 160 units; serum glutamic oxalacetic transaminase (SGOT), 3.66 micormoles/hr./ml. The value for thymol turbidity was 1 unit. Cephalin-cholesterol flocculation was negative. Electrophoretic values for serum proteins were as follows: albumin 3.45 gm. per 100 ml., alpha-1 globulin 0.47 gm., alpha-2 globulin 0.94 gm., beta globulin 0.78 gm., gamma globulin 0.86 gm., and total protein 6.50 gm. Agglutination to Salmonella typhosa H antigen measured 1 to 160; to the O antigen, 0; to S. paratyphi (para A), 1 to 80; to S. schottmuelleri (para B), 0; and to Brucella, 0. A roentgenogram of the chest revealed elevation of the right hemidiaphragm, prominence of the right hilus, and discoid atelectasis of the left lower lobe of the lung. Limited motion of the elevated right hemidiaphragm was evident on fluoroscopy. Hepatic density was enlarged to twice the normal area. No fluid levels were apparent. An excretory urogram showed the right kidney to be higher than the left, with evidence of extrapelvic pressure; the left side appeared to be normal. A roentgenogram of the lumbar spine showed six lumbar vertebrae with sacralization of L-6 and a narrow lumbosacral space.

Fever to 101° F. persisted each day. Analgesics were required for pain, although the need was thought to decrease slightly during the 5 days of

Conference arranged by Richard E. Weeks, MD, Section of Medicine, Philip E. Bernatz, MD, Section of Surgery, and Jack L. Titus, MD, Section of Experimental and Anatomic Pathology.

observation. Diffuse abdominal tenderness persisted but was more marked on the right and in the epigastrium. No mass was felt. On June 19, 1963, an operation was performed.

Discussion of Case

Hugh R. Butt, M.D., Section of Medicine, Moderator: Dr. Beahrs will discuss the case.

Oliver H. Beahrs, M. D., Section of Surgery, Discusser: This 30-year-old white man had been complaining of nausea, vomiting, fever, and abdominal pain for 3 weeks when he entered the hospital in June of 1963. One month earlier he had developed an aching pain in the right lower quadrant with intermittent sharp exacerbation. After observation for 1 week an appendectomy was performed, but the appendix was found to be normal. Limited exploration was carried out, I would assume through a small right lower-quadrant incision, and the findings were essentially negative. I would like to ask if any further information was available regarding the extent of this limited exploration of the abdomen.

Martin A. Adson, M.D., Section of Surgery: We did call the surgeon who did the exploration. He commented on the limited exposure obtainable from the incision but said he had been able to reach up to the region of the gallbladder and liver. He thought that these structures felt somewhat abnormal, but he could define nothing definite. . .

Dr. Beahrs: Could you tell me exactly where the incision was for this exploration?

Dr. Adson: I believe this was either the usual McBurney or Rockey-Davis incision in the right lower quadrant.

Dr. Beahrs: And not excessively low down?

Dr. Adson: Correct.

Dr. Beahrs. As the information is presented here, the examination was entirely negative. I would like to know the patient's residence, if this information is available.

Dr. Butt: South Dakota.

Dr. Beahrs. And do we know whether he has traveled outside of this country at all? And also what his occupation was? I understand there has been no exposure to farm animals, chemicals, or any infection. I would like to know if he has traveled.

Dr. Butt: He was an electronics technician and according to the note I see on the history had not traveled, at least not abroad. I never saw this patient.

Dr. Beahrs: Did he have a history of alcoholism or of using any medication to excess?

Dr. Butt: No.

Dr. Beahrs: Did he have a previous history of jaundice or heptatitis or of any liver disease?

Dr. Butt: No.

Dr. Beahrs: He was a white person. Was there any evidence of hemochromatosis or was there any skin discoloration that would make one suspicious of any underlying or systemic disease?

Dr. Butt: No.

Dr. Beahrs: Had he been injured in the recent past? Had he had an automobile accident or a farm accident?

Dr. Butt: No.

Dr. Beahrs: He had lost 20 pounds—what was his weight?

Dr. Butt: He was 6 feet, 1 inch tall and weighed 173 pounds.

Dr. Beahrs: From his history he had apparently been running a fever of 100° F. for about a month before his admittance to the hospital, and he appeared to be acutely ill. Although his abdomen was slightly distended, I would assume that any mass present in the abdomen would have been felt but I see that none was felt. There was no rebound tenderness. I assume that there was not a proctoscopic examination; on rectal examination, however, there was tenderness on the right side of the rectum. Assuming that this is correct, I also assume that there was no fullness in the right inguinal region that would lead one to think that there was an iliopsoas or retroperitonal abscess.

As far as the laboratory findings are concerned, the urinalysis was essentially normal and satisfactory except for the red blood cells in the urine. His pain was in the right portion of the abdomen. Did it radiate into the right groin, or into the right lower extremity, or was there any urinary urgency or frequency? And, thinking of a kidney stone, was there a determination of blood calcium?

Dr. Butt: There was no radiation of the pain, and blood calcium was not measured.

Dr. Beahrs: That red blood cells were in the urine may not be important. The excretory urogram shows evidence of extrapelvic pressure on the kidney without evidence of calcification. The white blood count was only 8100, and this seems to me to be rather important in view of the patient's history; the differential was essentially normal and it is especially interesting that the eosinophils numbered only 1 per cent. The cultures of urine and blood were negative.

The sedimentation rate was 84 mm.; this is high and would lead me to think that certainly there was an inflammatory process or maybe a malignant tumor. The value for blood sugar was slightly increased, which is probably not important. The value of 32 mg. per 100 ml. for blood urea would lead me further to feel that kidney function was probably satisfactory, even though the excretory urogram showed a defect on the right. The serum bilirubin and amylase were within normal limits. The SGOT value of 3.66 micromoles/hr./ml. is a little high, assuming that the upper limits of normal would be 1.43. The prothrombin time at 25 seconds is abnormal (normal, 17 to 19 seconds). This might indicate some dysfunction of the liver. Cephalin flocculation was negative, which is no help. The serum proteins were pretty much within the normal limits in the various fractions. But yet I am a little concerned regarding the serum albumin being 3.45 on a basis that this is a young 30-year-old man otherwise healthy up until a few days before the appendectomy and up to 3 to 4 weeks before his appearance in Rochester. The total proteins, likewise, were within normal limits, but maybe the values were a little lower than one might expect. The values for alpha-1 and alpha-2 globulins may have been a little high, while those for the other two fractions were essentially normal. I would like to have Dr. Stauffer give me his opinion regarding the serum proteins, as to whether or not they are normal or abnormal. I would assume that they are slightly abnormal for this man.

Maurice H. Stauffer, M. D., Section of Medicine: I would like to say that the serum proteins have only two mentionable points. First of all, as was commented by Dr. Beahrs, the value for albumin is at the lowest limit of normal and for this man probably was abnormal. In consideration of the other values, that for alpha-2 globulin (0.94 gm.) is slightly increased over the upper limit of normal which is about 0.8. Whenever you see this, you should think of either an inflammatory or a malignant process. Very commonly various tumors or inflammatory diseases will give a little "bump" in the alpha-2-globulin portion of the electrophoretic pattern. The fact that the value for gamma globulin was normal makes one tend to lean away from the diagnosis of cirrhosis or parenchymatous hepatic disease.

Dr. Beahrs: Thank you. The agglutination test is of no help. The roentgenogram of the chest revealed the right hemidiaphragm to be elevated. Dr. Pugh, would you comment on the roentgenograms?

David G. Pugh, M. D., Section of Diagnostic Roentgenology: The diaphragm is elevated, the lungs are normal, and there is no appreciable pleural reaction in the right base. The next roentgenogram shows elevation of the diaphragm and nothing much else. Again there is no evidence of pleural reaction. There is no fluid that we can see in the thorax. There is a little prominence of the hilar shadows, and I think we might assume that this is probably just prominence of the shadows of the pulmonary vessels because of the elevation of the diaphragm. This film taken of the patient in the supine position does not show any great displacement of the stomach. There is a large soft-tissue mass in the right side of the abdomen, shown by the density that is seen and also by the fact that there are no loops of bowel visible in the right upper part of the abdomen. The lower border of this shadow would indicate that it represents liver, but whether the entire mass is due to an enlarged liver or whether the liver has been pushed downward and the diaphragm pushed upward by some other mass is not evident. Next is a left lateral decubitus film obviously taken to see if any air-fluid levels could be demonstrated in the right upper quadrant. This is the proper and best procedure to check for subphrenic abscess because almost any upper abdominal operation will often leave the diaphragm elevated and splinted, and this does not mean very much. A large liver will elevate the diaphragm and make it so that it does not move much. Therefore, lack of movement of the diaphragm does not help in questions of subphrenic abscess. The procedure of choice in suspected cases of subphrenic abscess is the obtaining of both right and left lateral decubitus films. The left lateral decubitus film, which puts the right side up, will demonstrate an air-fluid level in the right upper quadrant if air is present. The right lateral decubitus film, which we don't have here, would help show if there were any pleural effusion on the right side. There is no evidence in this case of pleural effusion on the right, nor is there any evidence of an air-fluid level indicating a subphrenic abscess. An upright film taken for the same reason as the lateral decubitus film showed no fluid either free in the abdomen or encapsulated in an abscess in the upper right quadrant. We have the excretory urogram which showed good filling in 5 minutes, and the urologist interpreted this as showing extrinsic pressure on the right kidney.

Dr. Beahrs: From these x-rays, I gained several points of information; one is, and I think Dr. Pugh agrees, that there is no pleural effusion or pleural

reaction. This would certainly make me discount, somewhat, the presence of a subdiaphragmatic abscess. The second is that there is no fluid level to be seen, which likewise would make me discount the possibility of an abscess in the subdiaphragmatic or subhepatic areas. Also, the x-rays reveal a large right abdominal mass which extends well down into the right lower quadrant. The presence of this mass, even though it probably primarily involves the liver, could very easily be responsible for pain in the right lower part of the abdomen; for the pain also was present in the right flank and right side of the back. I assume that the process involved the liver or that the mass was the liver. I would discount subphrenic and subhepatic abscesses on the basis that there was no obvious history or demonstration of an etiologic agent for these. Now these factors do not eliminate the possibility of an abscess, but they do decrease the chance. There was no history of duodenal ulcer with perforation, of recent enteritis, or of injury, hematoma, or infection that might be the basis for an abscess. The appendix was found to be normal, and the symptoms preceded the appendectomy. No fluid levels were evident on the roentgenograms, and there was no pleural effusion. The liver was enlarged, or at least there was a very large right abdominal mass, and I would think that, if this were due to a subphrenic or subhepatic abscess, fluid levels should have been present, or at least some etiology of the hepatic or subphrenic or subhepatic abscess should have been apparent. Certainly a white count of 8100 with the differential as it was would make me discount the presence of an inflammatory process, or at least an acute inflammatory process. The blood cultures were negative, which would lead me to believe that this was a noninflammatory process, but they certainly do not rule out inflammation. The sedimentation rate was high; this could go with a subphrenic or subhepatic abscess or a malignant tumor. I suspect that an intrahepatic process was present. Results of the various liver functions tests suggest that at least serious liver dysfunction was not present, but I think there was some cellular disease of the liver because the tests were not entirely normal, the sedimentation rate was increased, and the prothrombin time was prolonged. A chronic liver process, such as a pyrogenic abscess and hydatid abscess are two other considerations, but I think for various reasons I would discount these. I believe liver tumefaction is present because of the liver size, the evidence of cellular disease of the liver, the elevation of the diaphragm without evidence of a subphrenic abscess, and the presence of pressure on the kidney. The pain is compatible with this diagnosis. There is no known primary source, from the history or examination, which could be responsible for a tumor of the liver in this patient.

Discusser's Diagnosis

Dr. Beahrs: I would conclude that a primary tumor of the liver is the basis of this man's trouble. Since the man was acutely ill and had lost weight, the tumor would more likely be malignant than benign.

Clinical Diagnosis

Dr. Butt: Thank you, Dr. Beahrs. The clinical diagnosis, just handed to me, was subphrenic abscess.

Are there any other suggested diagnoses from the audience? Dr. Stauffer, what do you think of the chance of this being a primary tumor of the kidney with metastasis to the liver?

Dr. Stauffer: I think that it is possible. Frankly I don't know; but there are some things here that might make one consider a primary tumor of the kidney, either with or without hepatic metastasis: the red cells in the urine and a few other items, such as the abnormal prothrombin time, which we have seen with hypernephroma. This mass as seen on the roentgenograms does look as if it is a confluent mass entirely comprised of liver, but perhaps there might be a mass below the liver. I would say that hypernephroma is one possibility to be considered.

Dr. Butt: Any other suggestions for a diagnosis?

Physician: Retroperitoneal fibrosis.

Dr. Butt: Dr. Dahlin will discuss the pathologic findings.

Pathologic Findings

David C. Dahlin, M. D., Section of Surgical Pathology: I received a specimen of the liver from Dr. Adson. It showed an obvious adenocarcinoma involving the liver. It was composed of cords of large clear cells which resembled hepatic parenchymal cells. Some of the cells contained a little brown pigment, presumably bile. Hence, I made the diagnosis of malignant hepatoma.

Large adenocarcinomatous masses of indeterminate origin in the right upper quadrant, when composed of large cells, bring up differential considerations which include hepatoma, renal-cell carcinoma, and adenocarcinoma of the adrenal glands. In this

case, the brown pigment seemed to label the tumor as a bile-producing hepatic carcinoma.

At necrospy, which was performed elsewhere, numerous dark-colored metastases were found throughout the body, including the lungs, heart, and kidneys. Hepatomas can be dark brown if they produce a lot of bile, or if they contain a lot of hemosiderin from an old hemorrhage into them. One of the lymph nodal metastases found at necropsy showed cells growing in cords as is characteristic of hepatoma. One of the pulmonary metastases contained abundant intrecellular dark brown pigment. Dr. Shorter and Mrs. Mary Noser did special studies on this pigmented material and found that the staining characteristics supported its being melanin rather than bile or iron. Accordingly I must reluctantly accept the diagnosis of malignant melanoma in this case.

Assuming the stains to be valid and that this was malignant melanoma, it must have come from elsewhere in the body, since malignant melanomas practically never begin in the liver. It might have come from some "blemish" in the skin which was removed years ago; the primary lesion might have been in some location undisclosed at necropsy such as above the hair line in the skin or from some mucous membrane. The liver in this case was not cirrhotic, but it did show evidence of extramedullary hematopoiesis suggesting extensive replacement of the bone marrow by metastasis.

Why should one have a problem in differentiating melanoma from hepatoma? Both may contain dark brown pigment. Furthermore, melanoma is notorious for its capacity to stimulate other neoplasms. Melanomas may have an organoid pattern simulating adenocarcinoma; sometimes their cells spindle and mimic sarcoma; in other cases, marked pleomorphism is seen.

Dr. Butt: Any questions from the audience? Dr. Adson, you operated on the patient. Would you like to comment?

Dr. Adson: Preoperatively, we considered infection to be the most likely basis for this patient's problem. The patient's departure from normal health was abrupt, and the history of onset of difficulty prior to exploration and appendectomy elsewhere was compatible with a complication of duodenal ulcer or cholecystic disease. Most impressive on physical examination preoperatively were the signs generally indicative of an inflammatory process. He exhibited a daily spiking temperature and appeared toxic. There was tenderness over the entire abdomen with marked tenderness and muscle guarding and rigidity on the right. The roentgenographic studies demonstrated again today were obviously of great value and, in retrospect, we were remiss in being influenced to little by these studies after once having formulated our initial diagnostic impression.

The operative approach used proved to be satisfactory. The incision was placed well out in the lateral part of the abdomen, where extraperitoneal drainage could be accomplished if necessary. There being no evidence of abscess, it was a simple matter to open the peritoneum which overlay the nodular liver. The incision gave satisfactory exposure for biopsy and exploration which left no question about the presence of an unresectable lesion.

Dr. Beahrs: Dr. Dahlin, I assume that a search was made for a primary melanoma and that none was found.

Dr. Dahlin: I don't know how extensively we searched, but we did search for a primary lesion.

Dr. Beahrs: Well, would the presence or absence of a primary skin lesion influence your pathologic diagnosis at all?

Dr. Dahlin: As I say, I am relying heavily on the special stains that Dr. Shorter provided in this case, and I think we have to assume that this is melanoma.

Dr. Stauffer: I had melanoma on my list of diagnoses, and I would like to say just a word about this. This clinical syndrome with metastatic melanoma has been described in the literature within the last year or two. Metastatic melanoma often gives systemic symptoms that are somewhat out of proportion compared with other tumors, especially with fever, chills, and often abdominal pain. This pattern occasionally may mimic a common duct stone, and I have been impressed with the febrile nature of metastatic melanoma in the liver. Examination of the urine for melanin in this case probably would have made the correct diagnosis.

Dr. Dahlin: I think another comment is in order regarding the problem of finding metastatic melanoma when it is unsuspected. This happens several times a year here, probably most often in neurosurgery. Sometimes, in such instances, when we talk to the patient's relatives they recall his having had a black cutaneous lesion removed, maybe several years before. Sometimes the patient has had a "blemish" burned off with some kind of cautery.

Dr. Butt: Are there any other questions?

Physician: Would you comment on the incidence of melanoma in men of this age?

Dr. Dahlin: Well, I am sure that, overall, melanoma is much more common than hepatoma, especially in the noncirrhotic liver in a man of this age. But given what was found at necropsy in this case, and no history of primary melanoma, then I think hepatoma would have the edge statistically.

THE WAITING OUTPATIENT

The Lancet, London, December 26, 1964.

The Ministry of Health has just sent to hospital authorities an account[1] of conditions in some outpatient departments in this country. It is concerned mainly with two aspects of delay in seeing outpatients—the interval between date of referral by a family doctor and date of appointment, and the time that elapses between a patient's arrival by appointment in the outpatient department and his entry into the consulting-room.

Waiting in an oupatient department is sometimes unavoidable: a clinician may be called to an emergency in the wards or to an urgent case arriving without appointment. Such things are understandable and are accepted by waiting patients if the position is explained to them sympathetically by a nurse or receptionist. More often, long waits in the outpatient department are the result of imperfect administration. Too many patients may be booked for the first half of the clinic, and waiting-time can often be reduced by spacing appointments more widely. (This point was made in another context by an O & M report[2] on the ambulance service, which noted that at a number of hospitals 80% or more of appointments were made for the first hour of a session.) Periodically, clinics should be timed to see whether any adjustment is needed in the spacing of appointments or elsewhere in the organization of the clinic. An appointment system in itself is not enough: it needs checking from time to time. There is still the feeling in some hospitals that punctuality in keeping an appointment with an outpatient is not a matter of the first importance. More efficient administrative methods and their intelligent application can do much to reduce the inconvenience of long waiting-times—with little or no expenditure of money.

Much more serious, however, is the other delay—the lag between referral and appointment. A delay of two weeks is not unreasonable, but in six out of the eight hospitals studied in the Ministry survey delays of four to six weeks were usual in some specialties, and occasionally they extended to eight, ten, or even twelve weeks. To this delay must be added any time that elapses before X-ray and laboratory investigations are completed. In at least two hospitals where patients had waited some weeks for an appointment, there were delays of up to a further eight weeks before a barium meal could be done, so the final diagnosis took up to sixteen weeks from the date of referral. Delays of this order had come to be accepted as a permanent feature of the outpatient services of the hospitals concerned. We refuse to believe that a wait of eight weeks for a barium meal cannot be reduced—even in X-ray departments that are inadequately staffed, as many regrettably are. The first (and perhaps the most important) step is to recognize that delays of this length are not "normal".

Inordinate delay in getting a consultant opinion makes nonsense of the value of a consultative outpatient service. Although urgent cases may always be seen promptly, a non-urgent condition may well deteriorate during a few weeks' delay; and the patient is kept in a state of anxiety, return to work may be delayed, and the family doctor may be worried and doubtful about how to handle the case in the meantime. "Having regard to the difficulties created for the patient, general practitioner and hospital alike, the inability of any hospital to give patients an early appointment to see a specialist is to be regarded as a major deficiency of the out-patient services."[1]

The trouble is widespread. The Ministry's study confirms previous inquiries,[3] many unpublished investigations by regional hospital boards, the experience of general practitioners up and down the country, and the laments of countless dispirited patients and relatives. It is unfair to lay too much blame on the hospitals or regional boards. They know only too well that a long waiting-time for a consultant opinion does nothing to enhance a hospital's reputation for efficiency, and no hospital willingly writes to general practitioners in its area advising them (as has been done) to send their patients elsewhere. Since 1948 the number of patients referred to hospital for specialist opinion has increased enormously and the present position stems from the knowledge of the public and of general practitioners of what

they have a right to expect under our National Health Service. Though staffing and building in hospitals have also greatly increased, demand has outstripped this progress by miles.

A long wait for a consultant opinion is nearly always the product of two factors: relative or absolute lack of consultants; and too little working space. It is useless to appoint more consultants if there is no place for them to work in the outpatient department. In many hospitals, outpatient consulting-rooms are fully occupied throughout the week, and various buildings (some quite unsuitable) have been pressed into use for additional sessions. The building of new outpatient departments of modern design is the answer to this part of the problem, but under the present building plan progress will not be rapid. Meanwhile, temporary extensions (as suggested in the Ministry's study) can be costly, not so much for the shell of additional buildings as for the service installations needed in an outpatient department—and most hospitals are already short of money for their current needs. If working space is available and the delay is due only to shortage of consultant staff, additional appointments can be made—if money is available. Consultants, however, naturally expect to have beds as well as outpatient sessions, and this can lead to difficulty.

Absence of medical staff through sickness, holidays, or other reasons is named in the Ministry report as the largest cause of delay in giving patients a consultant appointment. Here is probably the most intractable problem of all. Under their terms of appointment, consultants are expected to cover one another's absences, but owing to other hospital commitments this is very seldom possible. It is one thing to supervise the inpatient work of an absent colleague, since ward visits can be fitted in at odd times: it is quite another to free oneself for a whole session at a fixed time to see his outpatients. Locums are suggested, but anyone who has tried will know that consultant locums are very hard to find, because they are almost entirely limited to recently retired men. So far as they are available, however, they should certainly be used.

The suggestions in the Ministry's circular seem likely to do no more than touch the hard core of the disability. But the great value of the document is that it asks hospital authorities to look once more at the situation and to give their recommendations, hospital by hospital. The one word which is nowhere mentioned, however, is "money". If the Minister wills the end (and Mr. Robinson spoke forcefully on this matter only the other day[4]), he must also will the means.

FATTY ACIDS AND MULTIPLE SCLEROSIS

The suggestions that high-fat diets[5] and diets relatively deficient in unsaturated long-chain fatty acids[6] might predispose to multiple sclerosis in susceptible individuals were put forward several years ago. Allison[7] has studied differences in the prevalence of multiple sclerosis in certain communities in relation to various geographical features and diet; and his findings were not inconsistent with the idea that a low intake of unsaturated acids might be one of many possible aetiological factors. Until recently, however, there has been very little direct biochemical investigation of the fatty-acid composition of the lipids of nervous tissue or body-fluids in this disease, with a view to determining whether any abnormalities are present which might fit in with the dietary theories quoted above.

In 1963 Baker et al.[8] reported that lecithin extracted from macroscopically normal white matter from brains of 9 patients with multiple sclerosis contained relatively more palmitic acid (saturated) and less palmitoleic and arachidonic acids (unsaturated) than did the corresponding lipid fractions from the brains of 6 patients in whom there was no evidence of neurological disease. Gerstl et al.,[9] on the other hand, found slightly reduced levels of both saturated and unsaturated acids in the total lipid extracts of white matter from one case of multiple sclerosis. Baker and his co-workers suggested that the shift towards greater saturation of the fatty acids in brain lecithin in multiple sclerosis, which their findings indicated, could reflect either some local abnormality in lecithin metabolism in the brain itself or possibly some alteration in the proportions of saturated and unsaturated fatty acids reaching the brain. These observations clearly raise a number of questions concerning fatty-acid metabolism in the brain and the blood (and also perhaps in other tissues such as liver and intestine) which might secondarily affect the fatty-acid composition of the blood-lipids.

In a recent extensive study Baker et al.[10] measured the proportions of different fatty acids (both free and esterified) in the total lipids of serum from 47 patients with multiple sclerosis. The results were compared with those from a control group composed of 20 healthy subjects, and 18 "neurological" controls who were carefully matched with the multiple-sclerosis patients as regards physical characteristics and diet, and who came from the same

wards in the same hospitals, though they had other neurological diseases. The multiple-sclerosis patients were subdivided into four groups of increasing severity, based mainly on the criterion of degree of clinical deterioration, if any, in the preceding month. In general, the four groups of patients so defined also showed increasingly severe physical handicap; the neurological controls were therefore similarly graded by severity of handicap. The results showed a highly significant reduction in serum-linoleic-acid in the multiple-sclerosis group as a whole compared with the controls. Furthermore, it was clearly shown that in multiple sclerosis the percentage of linoleic acid falls progressively with increasing evidence of recent clinical deterioration. No significant fall related to degree of physical disability was discernible, however, in the control subjects.

Discussing these interesting findings, the authors point out that it is improbable that they simply reflect dietary differences or the effects of decreased mobility, and as yet we can do more than speculate about their precise significance in relation to multiple sclerosis. These results do not, however, agree with those of earlier workers. Gerstl et al.[11] found normal levels of dienoic acids, such as linoleic acid, in the serum-lipids of 11 cases of "active" multiple sclerosis, although the levels in 9 "inactive" cases were abnormally high; and Tuna et al.[12] reported that the percentage of palmitic acid was reduced, while that of linoleic acid was normal, in 7 clinically active cases.

These reports underline the urgent need for further work on lipid metabolism in man in relation to the demyelinating group of diseases. For example, it will be interesting to know more about the distribution of linoleic acid between the various lipid fractions of human serum in multiple sclerosis (as already proposed[6]), since it is known that in normal subjects the major proportion is present as cholesterol linoleate. In this connection it is relevant to consider the work of Glomset[13] and others who have studied the enzymic transfer of fatty acids from lecithin to cholesterol in human plasma; most of the acids so transferred are unsaturated. There may well be other transferases catalysing fatty-acid exchange between some of the other types of complex lipids in blood. Another question which arises, therefore, is whether any abnormality in these enzymes is demonstrable in multiple sclerosis.

Although much is known about lipid metabolism in the nervous system of some animal species,[14] comparatively few studies have yet been made of the metabolism of lipids in human nervous tissue, especially in relation to disease. Enzymes capable of degrading phospholipids (phospholipases A and B) have been shown to be present in human brain,[15 16], and recently an enzyme system capable of re-esterifying partially degraded phospholipids (lysophosphatides) with fatty acids has also been demonstrated in postmortem human brain[17]; in rat brain this type of enzyme, like that originally described in rat liver,[18] is most active in the presence of unsaturated acids. It has been suggested that this enzyme system may function in a cyclical manner, together with the phospholipid-degrading enzymes, and thus mediate a continuous "turnover" of one of the fatty-acid moieties of some of the complex lipids in nervous tissue. If this were so it could constitute one mechanism by which the fatty-acid pattern of brain lipids might be altered in disease, either because of a change in the fatty-acid pattern of the blood reaching the brain, or conceivably because of some abnormality in the enzymes themselves. Whether or not these various observations and speculations can eventually be integrated and shown to have relevance to the pathogenesis of human demyelinating disease are stimulating questions for future research.—The Lancet, London, December 26, 1964.

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STAFF QUITS SMOKING AT SCHOOL

Faculty of a Cambridge, Md., school have given up smoking on school grounds as an example to their students. E. T. Myers, principal of the 800-pupil St. Clair Elementary School, says the vote of the 31 faculty members to give up tobacco on campus was unanimous and voluntary. The move came after a discussion session in which teachers and other school personnel explored what images pupils held of them.—Public Health Reports 80(3):258, March 1965.

FROM THE NOTE BOOK

FOREIGN TRAINEES

Six doctors from foreign navies who are currently assigned to Oakland Naval Hospital for training in their specialties had a broader view of the United States when they traveled to Washington and New York on a "foreign officer informational objectives visit" arranged for them through the office of the Chief of Naval Operations.

They left San Francisco Monday, April 26, for New York for visits to the United Nations, the World's Fair, and other points of interest in the nation's largest city. Two days later they went to Washington, D.C. for a four-day visit which included sessions of Congress, tours of the White House, the Pentagon, the monuments, and the National Institute of Health, Bethesda, Md.

In Washington they were joined by six foreign officers from the U. S. Naval Submarine Medical Center, New London, Conn.

In the Oak Knoll group are CDR Chang Yong-taek and LT Paek Un-sang of the Korean Navy; LCDR Sha Chen-hua and LCDR Yang Toa-sheng and LT Wu Ke-shiu, Chinese Navy, and LT Stavros S. Vlavianos, Greek Navy.

CDR Raymond H. Watten of the hospital staff will serve as escort officer for the travelers.—Public Information Office, U. S. Naval Hospital, Oakland, Calif.

OUTSTANDING PERFORMANCE OF DUTY

To: LT Robert M. Beazley, MC USNR, 636290/2105

During the period August 1964 through February 1965 I observed your performance of duty as prospective Officer-In-Charge and Officer-In-Charge of South Pole Station. It was extremely gratifying to me to see you assume these responsibilities with calm assurance. With so short an exposure to the Navy prior to assuming your present duties it is obvious that your outstanding performance as Officer-In-Charge is based on exceptional natural leadership qualities.

By effectively organizing the work to be done and above all by your own energetic and enthusiastic example you have developed and organized your men into an effective team. Throughout the summer season working long hours under difficult conditions you and your men handled your part of the station resupply and refueling effectively and with dispatch.

As I leave the Task Force, I commend you for your outstanding performance in a difficult and trying assignment. Your leadership, initiative and enthusiasm are in the best traditions of the Navy.

Commander, Antarctic Support Activities DET ALFA is directed to append a copy of this message to your next fitness report.

S/J. R. Reedy, RADM USN

DEPENDENTS MEDICAL CARE

One of the most important sections of the Dependents' Medical Care Act authorizes care of eligible dependents in civilian facilities, under regulations prescribed by the Secretary of Defense after consultation with the Secretary of Health, Education, and Welfare. Generally speaking, authorized civilian care may be obtained at Government expense only when a dependent is residing apart from the sponsor; or when it has been determined that required care cannot be provided by a uniformed services facility located within reasonable distance of the patient's residence, in which event a DD Form 1251 (Non-availability Statement—Dependents Medical Care Program) normally is required. (NOTE: These brief paragraphs are not intended to be complete; see SECNAV INSTRUCTION 6320.8B for detailed policies and procedures.)

The Navy's share of the cost of care of eligible Navy and Marine Corps dependents by civilian sources is paid by the Bureau of Medicine and Surgery from funds appropriated by the Congress. These costs have increased since the effective date of the Dependents' Medical Care Act until they now represent one of the largest single items in BuMed's annual budget. In terms of appropriated funds only (ignoring reimbursements earned for services rendered in naval hospitals), these medicare costs are now greater than the funds appropriated for operation of all naval hospitals.

Historically, it has been extremely difficult to match available funds to these increasing costs. As

a result, it has been necessary for Navy Comptroller to transfer funds not only within BuMed's availability but also from other bureaus and offices of the Navy Department funded under the same appropriation—"Operation and Maintenance, Navy." This reprogramming of funds is not desirable; it means that the purposes for which funds originally were budgeted—worthy purposes or the funds would not have been requested and could not have been justified cannot be accomplished.

What is BuMed doing about this undesirable financial situation? In attempting to make maximum use of existing naval medical facilities, the Surgeon General has asked the Commanding Officer of each naval hospital to provide care for an average of two additional active duty dependent patients a day. He has brought the problem to the attention of the Chiefs of other bureaus and offices, and has asked them to provide similar guidance to activities under their command. Finally, the Surgeon General has informed Commandants of Naval Districts, the Chief of Naval Air Training, and Commanding Generals of major Marine Corps commands of the magnitude of our problem and of the necessity for attaining optimum utilizaton of the existing capability of naval medical facilities. In brief, all possible action has been taken to effect some diversion of civilian medicare hospitalization to naval medical facilities.

This article is presented in the U. S. Navy Medical News Letter to acquaint all medical officers with the seriousness of the problem, and to request their continued cooperation in its solution. That continued cooperation not only will be sincerely appreciated, but will help to ensure that budgeted funds will be available to carry out the purposes and programs originally planned.—Prepared by: A. E. Calahan, Assistant Comp. for Budgeting, BUMED.

NEW LIVE ORAL VACCINE

A successful field trial of a new live oral vaccine against adenovirus type 4, the main cause of severe acute respiratory disease in military recruits, was announced by Surgeon General Luther L. Terry, Public Health Service, Department of Health, Education, and Welfare, and RADM Robert B. Brown, Surgeon General, Department of the Navy.

Taken in the form of a capsule, the vaccine was 100 percent effective in preventing acute respiratory illness in 135 Marine recruit volunteers at a training camp where adenovirus 4 was epidemic. By contrast, almost 25 per cent of a control group of 132 who had been fed a placebo (a capsule not containing vaccine) were hospitalized with severe adenovirus respiratory disease during the same epidemic.

The vaccine represents a new concept in immunization against respiratory disease. A special coating on the capsule prevents the vaccine from being released until it reaches the intestinal tract. Thus the live vaccine bypasses the normal site of adenovirus infection, the respiratory tract. In the intestinal tract the vaccine causes a symptom-free infection that stimulates the production of protective antibodies.

The vaccine is the product of a comprehensive effort of the Vaccine Development Program of the National Institute of Allergy and Infectious Diseases. The idea was born in the Institute's Laboratory of Infectious Diseases. The Institute is one of the nine components of the National Institutes of Health, the principal medical research center of the Public Health Service.

Wyeth Laboratories, Inc., manufactures the capsule under a contract with the National Institute of Allergy and Infectious Diseases. Institute scientists, in cooperation with staff members of the District of Columbia Department of Corrections, tested the capsule for safety in volunteers at the Lorton Reformatory in Lorton, Virginia.

The field trial at the Parris Island and Camp Lejeune Training Centers was conducted by physicians of the National Institute of Allergy and Infectious Diseases, the Parris Island Marine Recruit Training Center, the Naval Medical Field Research Laboratory at Camp Lejeune, and the Epidemic Intelligence Service of the Communicable Disease Center of the Public Health Service.

Acute respiratory disease is the leading cause of hospitalization and treatment at outpatient clinics among recruits in all branches of the Armed Forces. Ten percent of these illnesses result in pneumonia. Yearly adenovirus epidemics at military training camps throughout the country in fall, winter, and spring rank second only to accidents as a cause of lost manpower. Loss of training time and increased medical care during one adenovirus type 4 epidemic at a single military recruit installation were estimated to have cost $10 million.—USDHEW, Bethesda, Md.

BACKGROUND INFORMATION

The search for virus particles in the blood of leukemia patients has been a logical application of a discovery made three years ago by Drs. Dalton and Moloney that causative viruses could be recovered from the blood of leukemic laboratory rats.

And the application of the immunofluorescent technique to the detection of possible leukemia viral antigen in human tissues is the outgrowth of work on a rodent leukemia virus completed by Drs. Fink and Malmgren only last year.

By spinning at high speeds in a centrifuge the blood of laboratory rats infected with the Moloney virus, Drs. Dalton and Moloney obtained virtually pure virus in the form of pellets. When very thin slices of the pellets were examined with the electron microscope, which magnifies 100,000 times or more, the virus particles were seen as distinctive spherical doughnut-like bodies.

By the use of a special staining technique worked out in collaboration with Dr. Francoise Haguenau of the College of France, Paris, Drs. Dalton and Moloney found about a year later that electron micrographs showed another form of the rodent leukemia virus with a characteristic shape, a six-sided head and a tail. The tadpole-shaped particle is now regarded as the typical form of the last stage in the development of the virus as seen in negatively stained material.

The fluorescent antibody technique in which known antibodies tagged with fluorescent material adhere to specific antigens in animal tissue has been used for some time for the detection of viruses in tissues. However, the rodent leukemia viruses are only very weakly antigenic and adaptation of this technique to the study of viral antigen in the tissues of mice and rats infected with the Rauscher leukemia virus was the result of months of effort on the part of NCI's Drs. Fink and Malmgren.

Their work began with preparation of a pellet using the Dalton-Moloney method. This pellet from the plasma of Rauscher-virus-infected mice was resuspended in liquid and injected into full-grown rabbits. Careful testing of the rabbits' serum at stated intervals revealed when antibodies to mouse plasma protein had been formed. This indicated to the investigators that the rabbits had reacted to the mouse protein accompanying the virus and, presumably, antibodies to the virus itself might also have been formed. Serums prepared in this manner did, indeed, show a strong neutralizing capacity for the virus when mixed with it before injection into mice.

To prepare the fluorescent antibody, the rabbit serums were pooled, heated to inactivate them, then absorbed with normal mouse plasma until no antibody reactive with the normal plasma portion of the pellet remained. The protein that was left was tagged with fluorescein isothiocyanate.

Imprints of tissues from leukemic mice were treated with the fluorescent antibody and examined under ultraviolet light for the yellow-green fluorescence characteristic of a specific reaction. Flourescence occurred in the nucleus and in the cytoplasm of leukemic cells, indicating the presence of Rauscher virus antigens. Cells from normal mice and rats and from animals infected with other viruses did not react with the Rauscher antiserum.

Investigators at Baylor University have been using a technique of pseudoreplication in the virus studies they have reported. Basically, this is a physical method for the identification and quantitation of viruses which is being used by cancer investigators as a stop-gap measure awaiting the successful tissue culture propagation of suspect human leukemia viral agents.

By staining virus particles with potassium phosphotungstate, scientists are able to enhance the visual contrast so necessary for successful electron microscopy and yet maintain structural detail. This latter factor makes it possible for electron microscopists actually to count particles of a size thought to be characteristic of the virus under study.

Development of all these techniques has sparked numerous studies at the National Cancer Institute and other institutions across the country. Lacking other clues, investigators examining the blood of human leukemia patients are looking for particles that resemble and behave in a manner similar to those obtained from the blood of leukemic laboratory animals. The specimens that appear to contain such particles are being tested in non-human primates and in tissue culture in the hope of obtaining information as to whether the particles are cancer-causing viruses.

AN INSTRUMENT DESIGNED TO SIMPLIFY SURGERY ON A SEVERED OR INJURED URETHRA

Dr. Robert H. Peters, Jr., MD, 1221 Wyoming Avenue, Forty Fort, Pa.

Dr. Robert H. Peters, Jr., MD, has furnished the following directions for use of his newly developed instrument:

After suprapubic opening is made into the bladder, the large female sound is introduced into the prostatic urethra. It is usually best to then have the assistant hold the top or handle of the female sound down toward the umbilicus. The smaller male sound, with its attached guide is then introduced into the urethra of the penis. Both sounds should be well

lubricated. After the introduction of the sounds, they are assembled at the guides. The sounds are then brought together gently keeping the penis stretched on the male sound. A slight rocking motion can be used until they meet completely at the guides. This helps to assure the meeting of the male and female sounds in the urethra without trapping tissue between the two. The tips of both sounds can be palpated at the perineum.

While holding them in joined position, they are rotated until the small or male sound is brought into the bladder: an indwelling catheter is then sutured to its end. This catheter can then be drawn back through the entire urethra. The catheter is kept in place until proper healing takes place.

Note: The guides are constructed from a solid piece of stainless steel rather than joined pieces to further simplify construction.

Naval hospitals may obtain further information about the instrument direct from Dr. Peters, if desired.

PHILOSOPHY AND THE FEE

In the wake of the Saskatchewan crisis of 1962, and in recognition of the social changes surrounding them, the Canadian Medical Association two years ago set up a committee "to consider the whole situation of the profession vis-à-vis Government and recommend fundamental principles of policy which they deem important to the future of the practice of medicine". Entitled the Philosophy of Medical Care, this committee's report appears as a supplement to the *Canadian Medical Association Journal.*[1]

Having examined several existing systems of medical care, the committee are particularly interested in the Australian arrangements by which the patient can reclaim part of what he pays the doctor.[2] They are attracted to this system because the patient has to pay part of the cost of the service directly. Total prepayment, whether by Government or by an insurance carrier, is in their opinion bad. They believe it deprives the patient of any incentive to use the service with economy; it results in the doctor always being paid an average fee for his services unrelated to his seniority, experience, or skill; and it can promote excessive demand by the patient or "overservicing" by the doctor. Though direct payment of the doctor by the insurer (or by Government) is convenient, it leaves the patient "unaware of the cost of his medical services, and fails to educate him to his responsibility towards the doctor's time and the financial stability of the plan".

The Canadians themselves have had experience in some provinces of schemes wherein the whole cost of medical care is paid by an insuring agency, and it is interesting to find them postulating that the totality of reimbursement, rather than the nature of the body providing it, is what leads to a wasteful misuse of resources.

So the committee hold that any Government assistance to major sections of the population should be conditional on the patient (unless he is indigent) having an appreciable financial commitment in each item of service they divide the community into three groups—the self-supporting, the indigent, and the marginal. The self-supporting are defined as those who pay income-tax; the indigent are those so badly off as to need State assistance with clothing, housing, and food; and the marginal lies between these two extremes. Modelled on Australian practice, a scheme has been devised which deals differently with each of these groups. Self-supporting people would be required to insure for medical services: when these were received, 60% of the cost would be paid by the insurer, 20% would come from a Government subsidy, and they themselves would pay the remaining 20%. For the indigent, who would be uninsured, the government would pay 80% of the standard fees, and the profession would forego the other 20%. The marginal group would be paying reduced insurance premiums, and for them the insurer would pay 20% of the charges, and the Government 60%; the patient would still be liable for 20%—but whether this was asked for would be left for the doctor to decide.

Many Canadians who at present have contracts with insurers for the payment of the full cost of medical expenses might be reluctant to substitute an arrangement which would give them only partial payment. But the report points out that the existing schemes for "total reimbursement" reimburse only the doctor's own fees, and, though they may meet standard charges for hospital care, they do not cover the cost of drugs or of prostheses, nor those of special nursing, physiotherapy, or ambulance transport. If all these extra benefits were included in the new package, the present policy-holders might be persuaded to accept it.

As the *Canadian Medical Association Journal* says, "the Canadian Medical Association is now called upon to relate its philosophical studies and its attitudes toward the practical realities of a series of recommendations which may have far reaching implications for medical practice in Canada".—The Lancet, London, December 26, 1964.

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1. Canad Med Ass J, 1964, 91, No. 12.
2. See Lancet, 1963, i, 876.

DENTAL SECTION

CARIES PREVALENCE WITH HIGH AND LOW INTAKE OF FLUORIDATED WATER

Gray, A. S., Bonham, G. H., and Luttrell, M., 390 Queensway, Kelowna, British Columbia, Canada. J. Canada D A 30: 550–555, Sept 1964.

Some children may not necessarily receive an adequate supply of fluoride even when the community water supply is fluoridated, because they don't drink enough water. There are great differences in intake of fluoridated fluids by children in different homes in the same community. For instance, powdered milk when reconstituted with fluoridated tap water contains a significant amount of fluoride, whereas whole milk has no fluoride.

Fluid-intake information was estimated retroactively (through interviews with parents and by estimates) for 160 six-year-old children in Prince George, British Columbia.

The estimated average fluid and fluoride intakes in fluids of young children of this northern community probably are lower and more variable than those reported from other, warmer centers.

For these six-year-old children during the winter months between October and February, the major sources of dietary liquids were milk, water and canned or frozen fruit juices. All 160 children drank milk, which formed 52.7 percent of the total fluid consumed. Consumption of milk averaged 17.6 oz. per day but the range was from 3 oz. to 52 oz. Only 136 children (85 percent) drank water as such; this was estimated as 23.8 percent of the total fluid consumed. The range of reported use of water was from 0.0 to 29 oz. per day, the average being 7.9 oz. About 53 percent of the children reported drinking juices, which formed 7.8 percent of the total fluid consumed.

The range of total fluid intake of these six-year-old boys and girls during the winter months was great—from 0.24 oz. per pound of body weight per day to 2.01 oz.

Overall, a 52 percent reduction in DMF rates of Prince George children, 6 to 8 years old, was observed after six years of fluoridation. Perhaps an even greater reduction in caries attack rates might have resulted if the parents had encouraged children to drink water so that, by age six, each child would consume two full glasses per day throughout the year.

EFFECT OF FLUORIDE DENTIFRICES ON TOOTH ENAMEL SOLUBILITY

Gillings, B.R.D., Broadhurst, G. G., and Martin, N.D. University of Sydney, Sydney, Australia. Austral D J 9: 414–418 Oct 1964.

Nonfluoride dentifrices have no effect on the in-vitro solubility of powdered bovine tooth enamel. Dentifrices containing fluoride reduce the solubility of the powdered bovine tooth enamel in pH 4.0 acetate buffer solutions. Reduction in solubility of the tooth enamel was significant but not as great as that produced by the equivalent concentrations of sodium fluoride or stannous fluoride in aqueous solution.

Treatment of enamel powder with 0.09 percent fluoride as an 0.2 percent aqueous sodium fluoride solution (the concentration claimed for the sodium fluoride dentifrice tested) reduced enamel solubility more than did the same concentration present in a dentifrice. Treatment of enamel powder with 0.09 percent fluoride as an 0.4 percent aqueous stannous fluoride solution (the concentration claimed for the stannous fluoride dentifrices tested) also reduced enamel solubility more than did the same concentration present in a dentifrice; the reduction was greater than that produced by the equivalent sodium fluoride solution.

The improved performance of the stannous fluoride solution probably is due to the stannous ion.

Yearling bovine lower incisors were collected, cleaned and sectioned, and the enamel was harvested and crushed. The powder was washed, dried and irradiated. The amount of enamel dissolved by the buffer solutions at each time interval (10, 20, 30, 40, 50, and 60 minutes) could be determined by comparing the count rate of the sample with the count rate of the standard enamel sample prepared at the beginning of the experiment. In control ex-

periments, duplicate runs were made with no dentifrice treatment at all and with distilled water. Although this in vitro test is not a substitute for in vivo testing of dentifrices, the method is useful for large-scale screening of experimental dentifrice formulas.

UNSUPERVISED CLINICAL TRIAL OF STANNOUS FLUORIDE DENTIFRICE

Slack, G. L., and Martin, W. J. The London Hospital Medical College Dental School, London, England. Brit D J 117: 275-280, Oct 6, 1964.

A two-year, double-blind clinical trial in 719 British children aged 11 to 13 years old showed no difference whatsoever in the control of caries in the experimental group using a dentifrice containing stannous fluoride and a control group using a popular dentifrice of standard composition containing no particular agent of proven value in controlling caries. The findings are at variance with most reports published on the efficacy of stannous fluoride dentifrices.

The experimental dentifrice contained 0.4 percent stannous fluoride in a compatible base containing metaphosphate, glycerine, binding agents, sodium lauryl sulfate, flavoring, blue color and water. The control dentifrice contained dicalcium phosphate, glycerine, a binding agent, sodium, lauryl sulfate, flavoring, blue color and water. The age of each dentifrice was between 8 and 12 weeks, to ensure compatibility with shop purchase. A constant and adequate supply of dentifrice and brushes for the whole family was maintained.

The children were shown the film "Let's keep our teeth," and were told that their teeth should be cleaned at least three times per day—after breakfast, after lunch, and last thing at night.

In 1961 a preliminary base line examination was made and both groups received the control dentifrice. In 1962 further base line examinations were made, and the stannous fluoride dentifrice was issued to the experimental group. Dental examinations were made in 1963 and 1964. The identity of the test group was not disclosed until the two years' results had been analyzed.

The percentage of carious teeth at each examination was essentially the same. There were no differences between the two groups as to oral hygiene status and gingival condition. More black-brown stains were found on the teeth of subjects in the experimental group than in the control group.

The failure to show any differences in caries status after the two-year trial is surprising when considered in the light of the published reports from the United States.

IMAGE OF DENTISTS IN NEW MEXICO

Benedetti, D. T., and Zippel, B. University of New Mexico, Albuquerque, New Mexico, Report of Survey. New Mexico D J 15(2) 160, 18 August 1964.

In the view of the average, middle-aged New Mexico man with an annual income of about $8,000 a year, the dentist is clearly a professional person with status below that of the physician and above that of the lawyer. The dentist is viewed as a person having a sedentary, relatively passive occupation whose services are extremely important but not indispensable.

Of 500 questionnaires mailed to a random sample of New Mexico residents, 90 (18 percent) were returned. The middle and upper middle income homes were heavily represented in the sample.

Asked for specific complaints, respondents were most concerned with fees charged by dentists and with the delay between the appointment and the visit. Only minor complaints were registered against "too many x-rays," pain or the use of local anesthetics.

If dentists are interested in improving their already good public image, they should think not so much in terms of altering specific practices as in terms of making their image more active and dynamic.

EFFECTS OF CALCIUM—OR PHOSPHORUS—DEFICIENT DIETS ON SECONDARY CEMENTUM AND ALVEOLAR BONE OF RATS

Ferguson, H. W., and Hartles, R. L. School of Dental Surgery, University of Liverpool, Liverpool, England. Arch Oral Biol 9:647-658, Nov.-Dec. 1964.

Weanling rats were maintained for 14 weeks on diets low in calcium (0.026 percent) or low in phosphorus (0.06 percent), with or without the addition of vitamin D.

The formation of secondary cementum was disturbed most severely by a double deficiency of calcium and vitamin D. The disturbance caused by diets deficient in phosphorus and vitamin D, although serious, was not so severe. In contrast, a simple deficiency of phosphorus caused a greater disruption of cementum formation than did a simple lack of calcium.

The observation that phosphorus deficiency *per*

se caused a greater metabolic disturbance in the formation of secondary cementum than did a simple deficiency of calcium is in accord with previous findings for bone and incisor dentin.

In relation to a deficiency of phosphorus, cementum reacts in a manner similar to bone; in relation to calcium deficiency, its behavior is more akin to that of the incisor dentin.

PERSONNEL AND PROFESSIONAL NOTES

Dental Officer Presentations. CAPT F. J. Kratochvil, DC, USN, U. S. Naval Dental School, Bethesda, Maryland, presented a series of four lectures entitled, "Planning Your Partial Denture;" "Mouth Preparation for Partial Dentures;" Designing Partial Dentures;" and "Partial Denture Occlusion and Insertion," before the Ontario Dental Association, 17-19 May 1965, in Toronto, Canada. CAPT Kratochvil will also present a lecture entitled, "Abuse and Recovery of Denture Supporting Tissues," before the Massachusetts Institute of Technology Department of Nutrition and Food Science, on 2 July 1965, in Cambridge, Massachusetts.

CAPT A. L. Raphael, DC, USN, U.S. Naval Station, Charleston, S. C. served as guest speaker before the annual Special Navy Meeting of the Jacksonville, Fla., Dental Society, on 17 March 1965. CAPT Raphael spoke on the subject of Periodontia for the General Practitioner.

CDR H. S. Samuels, DC, USN, U.S. Naval Hospital, Pensacola, Fla., presented an illustrated essay entitled, "Oral Manifestations of Systemic Disease," before the Meridian Area Dental Society, on 20 April 1965, in Meridian, Mississippi.

CAPT G. W. Ferguson, DC, USN, Dental Officer, U.S. Naval Station, Newport, Rhode Island, presented a paper entitled, "Operative Dentistry—Its Many Facets," before the Twenty-first Annual Post-College Assembly, College of Dentistry, Ohio State University, on 14 April 1965, in Columbus, Ohio. CAPT Ferguson also presented a paper entitled, "Preventive—Operative Dentistry," before the 101st Annual Session of the Massachusetts Dental Society, on 5 May 1965, in Boston, Massachusetts.

The following dental officers of the U.S. Naval Station, Newport, Rhode Island, presented lectures as indicated before the Newport County Dental Society, on 26 April 1965. They also presented the same lectures before the Providence Dental Society, on 27 April 1965. CAPT A. E. Smith, DC, USN and LT A. S. Mowery, Jr., DC, USNR, "The Utilization of Endodontics and Crown and Bridge Procedures in the Restoration of Mutilated Teeth." LT L. L. Lancaster, DC, USNR, "The Oral Antral Fistula—Surgical Treatment." LT J. F. Begg, DC, USNR and LT M. G. Mowad, DC, USNR, "The Importance of Operative Procedures in Periodontics Patients."

HEALTH TEACHING

Oral Health 55(4): 55, April 1965.

Health teaching to be effective must be simple. It must be at the level of the person's understanding and developed from the stage at which you find him, not at the stage at which you, the educator, think he should be. If this can be remembered, health teaching is not difficult. The following Chinese aphorism can be accepted as a fundamental:

If I hear it I forget,
If I see it I remember,
If I do it I know.

PREVENTIVE MEDICINE

INSECT VECTOR COLLECTION, ETHIOPIA, 1961

CDR L. W. Teller, Jr. MSC USN, 344450/2300, Officer in Charge, Disease Vector Control Center, Naval Air Station, Jacksonville, Florida.

One of the attractive aspects of active duty in the Navy is the opportunity to "see the world." Sometimes shipboard duty assignments carry men to foreign ports, but interior visits are less common. One of these latter instances occurred in 1961 when CAPT Sidney A. Britten, MC USN, then the Officer in Charge of Preventive Medicine Unit No. 7, Naples, Italy, received dispatch orders to proceed to Ethiopia to supervise the administration of 100,000 doses of yellow fever vaccine. The author

was ordered to accompany the Navy group and to collect mosquito specimens in the epidemic area.

The World Health Organization planned for the American group to inoculate villagers in a broad crescent ahead of the expected spread of the epidemic. The area was generally in the southwestern quarter of Ethiopia. During April and May 1961 insect vectors of yellow fever were difficult to find in most of the villages where inoculations were administered. In fact, the Savannah Country, at 6500—9000 feet elevation, had relatively few places where mosquitoes could breed. After diligent searching, mosquito larvae were finally collected from springs, road puddles, artificial containers, tree holes, and from a fresh water lake.

Several factors prevented our entry into the ill-defined epidemic area in the Omo River Basin. When it became apparent that visits were not possible there, it seemed advisable to collect any and all insects available around villages scheduled for vaccine administration. At that time few Americans had been in the area described. A Prototype Vector Survey Kit (FSN 6545-982-4121) was utilized in collecting, labelling and storing the specimens. Mosquito larvae and ectoparasites were preserved in 70% alcohol in small vials. The majority, however, were collected in chloroform-charged killing tubes. Whenever conditions permitted, a gasoline lantern was placed near a white tent to attract flying insects at night.

There were over 400 specimens collected, representing 11 insect orders, 39 families and 64 genera.

The anopheles mosquitos were identified and retained by Mr. G. A. Verrone, formerly at the Malaria Eradication Service, Addis Ababa.

The ticks were identified and retained by Mr. Makram N. Kaiser NAMRU #3, Cairo, U.A.R.

The remaining specimens were sent to the Insect Identification and Parasite Introduction Research Branch, U.S. Department of Agriculture. Even though not all specimens have been identified enough have been processed to provide useful information.

Arthropods of possible medical and veterinary importance are listed below:

DIPTERA

CULICIDAE

* *Aedes aegypti*
A. circumluteolus
A. cumminsi
A. dentatus
A. hirsutus
* *A. simpsoni*
Aedes (Mucidus) spp.
Anopheles christyi
A. gambiae
Culex pipiens
C. theileri
C. tigripes
C. trifilatus
C. univittatus
Culex (Culex) sp.
Culex sp. (Misc.)
Mansonia Fuscopennata
M. Microannulata

TICKS AND MITES

Amblyomma coherens
Amblyomma sp.
Haemaphysalis l. leachii
Rhipicephalus sp. near *compositus*
Rhipicephalus s. simus
Dermanyssidae (On Bat) genus & sp. ?

MUSCIDAE

Musca domestica
M. sorbens
Orthellia rhingiaeformis
Stomoxys calcitrans
S. niger
S. varipes
Fannia sp.
Dichaetomyia sp.
Muscina stabulans

CALLIPHORIDAE

Chrysomya chloropyga

DIOPSIDAE

Diopsis sp.

SIPHONAPTERA

PULICIDAE

Pulex irritans
Ctenocephalides canis
Ct. felis

* Yellow fever vectors

The search for known vectors of yellow fever was not successful until the group was in a coffee growing community within 50 miles of the "epidemic area". *Aedes aegypti* and *A. simpsoni* were collected as they attempted to feed on the writer.

Since livestock outnumbered the human popula-

tion, there were numerous dung-inhabiting flies from the family *Muscidae*. *Musca sorbens* was extremely abundant and annoying, attempting to enter our nostrils, eyes, ears and mouth. The public health aspects of this situation require little imagination to see the vector potential.

Of entomological interest were a number of workers of *Megaponera foetens*, a large stinging ant that emits a foul odor, the stalk-eyed fly, *Diopsis,* and the termites *(Odontotermes)* feeding on living eucalyptus trees. Many Ethiopian huts used eucalyptus foliage to repel house-invading insects.

In spite of the primitive conditions, the opportunity to visit Ethiopia was one of those which was professionally satisfying and long remembered.

THE DECLINE OF PELLAGRA IN THE SOUTHERN UNITED STATES

J.N.P. Davies, MD Brist, Professor of Pathology Albany Medical College, Albany, New York. *The Lancet 2(7352):195-196, London, July 25, 1964.*

The first recorded outbreak of pellagra in southern United States was in 1907. By 1922, when regular records were started, the disease was common and widespread throughout the county. Between 1930 and 1933 the frequency of pellagra declined sharply, and today the condition is seen only in food faddists and alcoholics. The question is why a deficiency disease, classically associated with ignorance, poverty, and malnutrition, should have declined most dramatically just when economic circumstances were at their worst? For in 1930 the United States was in the grip of the most severe economic, industrial, and agricultural depression it had ever known.

KNOWLEDGE OF THE DISEASE

The first national conference on pellagra was held at Columbia, South Carolina, in 1912 when the U.S. Public Health Service began investigating the disease. In 1915, pellagra was induced in convict volunteers fed a restricted diet; by 1922 the black-tongue syndrome had been similarly induced in dogs and cured by supplementing their diet with meat, milk, and yeast. Brewer's yeast in sufficient amounts was then found to cure human pellagra, and from 1928 was provided, free of charge, by State and county health agencies and the American Red Cross. But the more potent liver extracts were not developed until 1932; and the pellagra-preventing factor, nicotinic acid, was identified only in 1937. Thus there seems to be no direct connection between medical and biochemical advance and the sudden rapid decline of the disease in the South.

ECONOMIC AND SOCIAL BACKGROUND

The economy of the Southern States was based on cotton, and ever since the Civil War the South had been a more or less economically depressed area. When economic depression became general and cotton prices fell, farmers tended to increase the acreage under cotton so that higher sales would compensate for lower prices. In 1927 the southern farmer was worse off than he had been in 1922, and his net average income fell from about $874 in 1929 to $342 in 1931. A tenant share-cropping system was general. Tenant farmers mortgaged their prospective crop yields and, if crops failed or prices fell, could not repay the loans. Wages were low and food prices high. Local stores could carry only a narrow range of provisions and merchandise. Whenever food prices rose pellagra became more widespread.

Through proverty and force of habit, the populace comsumed a poor diet based on the three Ms—meal, meat, and molasses. The meal was a cornmeal, and the meat salt pork and lard. In better times these were supplemented by wheat meal, rice and dried beans. Very few people cultivated a garden.

Before 1900 the corn was generally ground by small local water-driven mills which produced a coarsely bolted or unbolted meal retaining most of the germ and hull of the grain. As large milling concerns took over, this was replaced by a finely bolted meal which looked better, tasted better, and kept better than the coarser meal but lacked the germ and its vitamins.

The pellagra situation deteriorated steadily in the 1920s reaching its nadir in the years 1929-31. By 1932-34 there had been great improvement: the number of cases reported from the southern States fell by 58%. The frequency of the disease remained at this lower level until, in the 1940s, pellagra virtually disappeared. Mortality reached a peak in 1930 and has fallen ever since. Thus the decline of pellagra in the southern states began and was most rapid in the years 1930-33, the depths of the great depression. Since the development of pellagra takes time, the cause of this decline must have been in operation in 1930 or before.

THE EXPLANATION

There is much to suggest that pellagra began to disappear from the southern states because of a change in the eating habits of the populace. In 1916 Goldberger and Wheeler (Pub Hlth Serv Hyg Lab

Bull 153: 85, 1929) carried out the dietary survey in a southern mill town; in 1932 Stiebeling and Munsell (US Dept Agri Techn Bull No. 352, 1932) repeating the survey, reported some notable changes. The intake of lard, fat and lean meat, and cereals had altered little; sugar consumption had doubled as had the apparent consumption of potatoes and fresh and canned vegetables (the 1916 survey did not include home-produced vegetables): eggs were more generally used, the consumption of milk had gone up by ⅓, and the number of families owning a cow had increased by 7%.

In 1927 Goldberger (Pub Hlth Rpt Wash, 42: 2193, 1927) and Sydenstricker (Pub Hlth Rep Wash, 42: 2706, 1927) published reports on pellagra which clearly delineated the nature of the problem and how it should be tackled. The Agricultural Extension Services were instrumental in transmitting this information to the rural agriculturalist. These had been established in 1902 with the aim of improving farming practice and generally raising rural standards of living. In the depression, when cotton became unsalable, it was the Extension Services which encouraged construction of cotton crops in the field and reduction of acreage; and it was their agents who persuaded the southern farmers to devote the land and labor thus liberated to the feeding of their own families. In the absence of any temptation to concentrate on cash crops, the farmers were ready to listen to advice about the dietary prevention of pellagra. During the depression the number of small productive farms increased. The total arable acreage and production of principal crops (wheat, oats, barley, rye, flaxseed, corn, cotton, tame hay, potatoes, and sweet potatoes) fell sharply between 1929 and 1933; but the production of soybeans, peanuts, field peas, citrus and other fruits, and eggs and cattle actually rose, and there is no doubt that the production of vegetables and farm products for home use increased enormously. In North Carolina, for example, where there were 88,800 home gardens in 1927, there were 113,655 in 1932. And it was this departure from cash-crop monoculture that led to the sudden decline in pellagra.

CONCLUSION

In many areas of the world today, hope of ever overcoming malnutrition seems dim. Poverty and ignorance and intractable food habits are stubborn and hard to change; distribution of surplus farm products from other countries does nothing to improve the long-term prospects and may even depress local production. The southern States were poor and depressed, their soils eroded, and their people ignorant. Yet, in the space of a few years, tenaciously held dietary habits were abandoned and the frequency of deficiency disease was drastically reduced. The propaganda that achieved all this should repay closer study.

MALARIA IMMUNOLOGY

WHO Chronicle, 19(2): 82-83, February 1965.

It has been known for a long time that acquired immunity to malaria does exist, notably in zones where the disease is endemic. The protective role of the serum gamma globulins of immune persons has been demonstrated experimentally.

In the past, research on immunity to malaria was hampered by the ineffectiveness of the classic serological techniques such as agglutination, precipitation, and to some extent complement fixation. New immunological tools such as haemagglutination, immunoelectrophoresis, and immunofluorescence have proved more useful.

In a recently published paper A. Voller (Bull Wld Hlth Org., 30: 343, 1964) of the London School of Hygiene and Tropical Medicine, describes fluorescent antibody methods and discusses their application in malaria. These methods of staining antibodies have shown that malaria parasites can be classed in several immunospecific groups according, for example, to whether they attack rodents, birds, or primates. There are cross reactions between members of each of these groups, but not between members of different groups. It should be stressed that such serological cross reactions do not necessarily reflect functional cross immunity.

Fluorescent antibody testing has made further progress possible in malaria serology. The author describes the methods used in such testing, which has the advantage of being rapid and specific; also, its results can be photographed.

Immunofluorescent studies also indicate the existence of antigenic resemblance between the sporozoites and the blood and exoerythrocytic stages of the malaria parasite.

One of the most important applications of fluorescent antibody methods has been in the detection and titration of malarial antibody. In human volunteers it has been observed that malarial antibody appears at the same time as the parasites in the peripheral blood. Subsequently, the level of antibody increases with the parasite rate and falls when the person is cured.

The same methods have been used for titration of antibody in an area where falciparum malaria is endemic. High antibody levels have been found in the serum of adults and in placental cord blood. Levels are low in children between 6 and 30 months. In older children they gradually increase.

AIR POLLUTION

WHO Mag. World Health, Page 17, Sept 1964.

It is generally accepted that atmospheric pollution is a factor of importance in the causation of lung cancer in man. Epidemiological evidence points to a consistently increased incidence of lung cancer in urban as compared with rural areas that cannot be explained by differences in smoking habits. Physico-chemical analyses have demonstrated the presence, in polluted air, of known carcinogens of the polycyclic aromatic hydrocarbon group (notably 3,4—benzpyrene), while other chemical types of carcinogen and/or modifying factors are thought to be present.

Preventive Measures

1. Increased use of electricity and natural gas, to replace other domestic fuels.
2. Development of more efficient domestic equipment for using coal and oil.
3. Supplying heat to whole districts from central plants.
4. Smokeless combustion of fuels in industrial furnaces through electrostatic precipitators, scrubbers, etc.
5. Elimination of smoke from diesel engines by careful control of operating conditions. It has sometimes been suggested that diesel engine exhausts are more dangerous than gasoline engine exhausts. The evidence would suggest that the opposite is true.
6. Development of exhaust control devices for automobiles.
7. Improvements in the design of the internal combustion engine.
8. Increased use of hydro-electric power.
9. Increased use of electric and efficient diesel traction.
10. Establishment of "green belts" between industrial and residential areas.

SAFE HOLDING TEMPERATURES FOR COOKED FOODS

It has been noted in various type-command publications containing references to food-service principles that they are not in accord in stating safe holding temperatures for cooked foods as recommended by BUMED and contained in BUSANDA MANUAL, Volume III, para. 37776, Voume IV, para. 41741, and Volume VIII, para. 82611. The following information is presented for guidance and will be reflected in a forthcoming revision of Chapter 1, "Food-Service Principles," of the *Manual of Naval Preventive Medicine.*

a. *General.* Protein foods which are not served immediately after cooking will be either chilled to temperatures of 40° F. or lower (but not frozen) or held at 140° F. or higher. Protein foods include meats, fish, poultry, gravies, meat stocks, soups, eggs, custards, cream fillings, and milk. Growth or harmful bacteria and the development of toxins (poisons) formed by the bacteria occur rapidly in cooked protein foods during holding at temperatures between 40° F. and 140° F. Cooked protein foods which have been held at temperatures between 40° F. and 140° F. for more than 3 hours will be considered unsafe for consumption and will be destroyed. If the product is refrigerated at intervals and then permitted to warm up, the total time of the various periods between 40° F. and 140° F. will be not more than 3 hours. Protein foods that are composed of ingredients which are hand-peeled, hand-sliced, or hand-diced after cooking will never be used as leftovers, the 3 hour limit between temperatures of 40° F. and 140° F. is usually taken in preparing, chilling, and serving the food. These foods include potato salad, chicken salad, macaroni salad, shrimp salad, egg salad, and similar items. Hand preparation not only increases the chance of contamination, but generally increases the length of time that these foods are held at room temperatures. It is also dangerous to return opened jars or bowls of mayonnaise and cooked salad dressing from salad bars to refrigerators for reuse at a later meal. Because of the danger of miscalculation of total lapsed time that these salad dressings have been held at temperatures between 40° F. and 140° F., mayonnaise and cooked salad dressings will be placed on the salad bar a small quantity at a time and will not be returned from the salad bar for reuse as leftovers.

b. *Leftovers to be Chilled.* When leftovers or warm foods are chilled, care will be taken to assure prompt and thorough chilling (40° F. or below) to the center of the food mass. Foods that are to be refrigerated will be placed in shallow pans to a depth of not more than 3 inches and will be cov-

ered with lids or waxed paper. Such foods will not be put in large deep pans, as chilling may take so long to get to the center of the food mass that sufficient time is allowed for growth of harmful bacteria and the development of a toxin. Any other procedure which might delay cooling also will be guarded against. Food to be chilled will be placed in the chill box immediately. Leftover food will not be saved for more than 36 hours. Freezing leftovers is prohibited.

c. *Special Meals.* The 3-hour maximum time permitted for holding cooked protein foods at temperatures between 40° F. and 140° F. is of particular importance in the case of special meals (boat meals and flight meals). It is essential that in preparing and using sandwich fillings (those containing meat, meat food products, poultry, fish, and eggs) that close galley supervision and liaison with using units be maintained to insure continuous refrigeration. Such fillings must not be held for more than 3 hours between temperatures of 40° F. and 140° F. (total lapsed time in the galley and aboard aircraft or boats). Unopened cans of canned meat, chicken, and tuna will be issued in lieu of meat sandwiches when consumption is not anticipated within the 3-hour time limit between 40° F. and 140° F.; in these instances bread and butter sandwiches can be issued and consumed with the canned meat or poultry. Members of the using unit may desire to add the canned meat to the bread and butter sandwich immediately prior to consumption.

—Sanitation Section, PrevMed Div, BUMED.

WARNING AGAINST REFRIGERATORS

On 21 August 1964, the U.S. Public Health Service warned the public to be especially alert to the hazard of idle and abandoned refrigerators and ice boxes.

In August 1964, there were 13 children killed by suffoctation in unattended, temporarily idle, or abandoned refrigerators in Maryland, Illinois, and California. Three children were found dead in an unused back porch refrigerator in Chicago, 3 were in an idle refrigerator in Baltimore, and 3 were in a freezer temporarily out of service in Los Angeles.

Parents should be aware that an empty and idle refrigerator is a menace to the life of a child unless special action is taken to prevent entry or guarantee ventilation. Most refrigerator entrapment accidents occur to children under 6. If a refrigerator is to be junked, discarded, or abandoned, the doors should be removed or the appliance should be carted away and destroyed.

The refrigerator temporarily out of use also is a death trap. It is recommended that upright units be placed so that the door stands against the wall. An added precaution to make the box "child proof" would be to encircle the box with strong filament tape or a simple chain secured with a padlock. Some owners may prefer to attach with plastic cement a small wooden block which will prevent complete closure of the door and insure a fresh air supply inside the box. The block can be removed when the appliance is to be restored to service.

In recent years, the federal government and many municipalities and states have enacted laws designed to prevent entrapment within refrigerators. No deaths have been reported involving a refrigerator manufactured since 1958. The Public Health Service Division of Accident Prevention, which works closely with state and local health and medical officials and industry and trade association groups on this problem, has in production educational manuals explaining to individuals and program planners how to prevent refrigeratory entrapment.

—PHS DHEW, Press Release, August 21, 1964.

INSECT SURVEY
USS DENNIS J. BUCKLEY (DDR-808)

An insect survey was conducted aboard the USS Dennis J. Buckley (DDR-808) on 15 January 1965 by three members of the Entomology Department of the U.S. Navy Preventive Medicine Unit No. 5, San Diego, California. Accompanying the team on this survey were the Medical Department Representative and the mess deck Master-At-Arms.

Despite an intensive search for the signs and presence of cockroaches and other pestiferous insects, none were observed. What was observed, was a high level of sanitation throughout the vessel, demonstrating fully the basic tenet that good sanitation is the first step toward successful control and elimination of cockroaches. Handouts included recommendations for pest control materials and equipment and information on kepone-peanut butter bait.

All hands, particularly Nizamian, J. P. HM1, Medical Department Representative and Wieland, C. W. BN1, mess deck Master-At-Arms, are to be commended for a job well done. "It is indeed a rare pleasure to survey a vessel exhibiting such cooperation at all echelons," stated the Officer-in-Charge of the U. S. Navy Preventive Medicine Unit No. 5.

—PrevMed Div, BUMED.

RESERVE TRAINING FOR MEDICAL ENTOMOLOGISTS

The Armed Forces Pest Control Board will sponsor a reserve training course for medical entomologists from 26 July through 6 Aug 1965. This will be the 6th annual course in military entomology and will be presented by the Training Branch, Communicable Disease Center, U.S. Public Health Service, Department of Health, Education and Welfare in Atlanta, Georgia.

This course, which is limited to a maximum of 28 attendees, is designed to replace that formerly offered at the Naval Medical School, National Naval Medical Center, Bethesda, Md.

It is believed that the new course will be of greater value to the Armed Forces and to the individual, placing emphasis on the epidemiology of vector-borne diseases, and presenting military entomology problems around the world.

Reserve Medical Service Corps Officers desiring to attend this course should request a quota for attendance, via the Commandant of their naval district, to the Executive Secretary, Armed Forces Pest Control Board, Forest Glen Section, WRAMC, Washington, D. C. 20012. In view of the tri-service participation and limitation on attendance, requests for quotas should be forwarded as soon as possible.

—PrevMed and Reserve Div, BUMED.

KNOW YOUR WORLD

DID YOU KNOW:

That effective 27 July 1964, the Federal Committee on Pest Control was established by joint action of the Secretaries of Agriculture, Interior, Defense, and DHEW, to replace the former Pest Control Review Board (FPCRB)? The functions of the new Committee have been broadened to continue the review of Federal pest control programs and to include the responsibility for reviewing and coordinating all Federal pesticide monitoring programs, public information programs relating to pest control, and research programs on pesticides and pest control. The Committee will function in part through subcommittees. It has already established the Pesticide Monitoring Subcommittee and the Information Subcommittee, is in the process of establishing the Research Subcommittee, and has under consideration the formation of a fourth that will provide a forum for the exchange of scientific information among scientists and pest control program operators. (1)

That in an effort to reduce infestation in flour, NSC Oakland, on behalf of DSSC, has been testing 6 types of flour sacks under different storage conditions to determine which type of flour sack closure is best for repelling insects? Five AFs bound for WESTPAC will load 100 sacks of each type and carry them in their holds until they return. Upon the return of each AF from WESTPAC, the flour will be tested for insect infestation. (2)

That in 1963, Coronary heart disease accounted for about 212,000 deaths among females in the United States, exceeding by more than 60% the toll from cancer? Arteriosclerotic heart disease is responsible for ¼ of the total mortality among females and for nearly ¾s of their mortality from all types of heart disease combined. (3)

That pulmonary paragonimiasis has been detected in Eastern Nigeria? C. Nwokolo reports (J Trop Med Hyg 67: 1, Jan 1964) the finding of pulmonary paragonimiasis in 4 patients who had never been outside Nigeria. These cases strongly suggest that endemic foci of the disease probably exist in scrattered areas in Nigeria. The alternative mammalian hosts of the parasite, including cats and dogs, as well as the appropriate intermediate hosts (snails, crabs, and crayfish), abound in various parts of Nigeria. (4)

That the National Tuberculosis Association, in a background statement on emphysema says the disease was the primary cause of death stated on 12,350 death certificates in 1962 throughout the United States, contrasted with 1,914 deaths from emphysema in 1952, "better than a six-fold increase (in the reported deaths) in 1 decade." (5)

That in 1951 there were 500,000 reported cases of smallpox in the world? In 1963, 5 years after WHO had launched the worldwide smallpox eradication campaign, there were less than 100,000. Of these, about 80% were in Asia. Prospects of eradicating smallpox from the world has been stated by the WHO Expert Committee on Smallpox as follows:

"The global eradication of smallpox is well within the bounds of possibility. The only reservoir is man;

infection is manifest; carriers do not exist, and successful vaccination provides effective immunity. Its eradication is a matter of concern to all countries, as those now free constantly run the risk of the introduction of the infection from endemic areas." (6)

That in 1820 one American farmer produced enough food, fiber and other products for 4 people? In 1963 he supplied enough for 31 people, 5 of them in countries that import American foods.

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